

RESULTS

Among the death rates examined, all were well explained by regression. The coefficients of determination (R^2) ranged between .74 and .83 meaning that regression explained an estimated 74 to 83 percent of the variation in the respective death rates. Each of these estimates was statistically significant.

As indicated in the preceding section, occupational distribution was found to be highly explanatory for acute myocardial infarction. The occupation variables also made significant contributions to the explanation of lung and prostatic cancer but were much less explanatory for colon-rectum cancer. Due to the large number of variables as well as difficulty of interpretation, specific results for the occupation variables are not given here.

For other variables used in these analyses, Table 2 summarizes the statistically significant results. Here, parentheses () are used to identify a set of highly correlated predictor variables; the symbol + identifies the proxy variable used in regression. In synthesizing these results, one should keep in mind that results for a proxy variable are probably applicable to that variable's correlates, either directly or inversely, depending upon the direction (sign) of the correlation between the proxy variable and the correlate (see Table 1).

It is also important to keep in mind that these results are subject to the usual limitations of regression analysis; for example, results are biased to the extent that potentially causative variables (such as nutritional factors and alcohol and tobacco consumption) could not be included and have not been accounted for.

Finally, one should keep in mind that these results, while taking a large number of factors into account, in no way imply cause-and-effect relationships. They merely indicate the extent to which a death rate is associated with a certain predictor variable, given that we have simultaneously accounted for associations between the death rate and other predictor variables being considered.

TABLE 2
Statistically Significant Results for Non-occupation Variables
Regressed on Age-race-sex-adjusted Death Rates
81 North Carolina Counties

Cause of Death	Statistically Significant Variables		
	Name	Beta Weight*	Level of Significance**
Acute Myocardial Infarction	(Elevation [†] , January Temperature, July Temperature)	-1.054	.005
	Water Zinc	.656	.01
	Population per Physician	-.585	.05
Lung Cancer	Per Capita Income	-2.052	.005
	Cotton Acreage	-.587	.01
	Population per Physician	-.485	.05 -
	Water Iron	-.350	.05
Colon-rectum Cancer	Median Education	.860	.025
	Water Manganese	.509	.005
Prostatic Cancer	(Elevation [†] , January Temperature, July Temperature)	-.740	.025
	Precipitation	-.553	.01
	(Water Sodium [†] , Alkalinity, Chloride, Potassium)	-.530	.025
	(Air Particulates [†] , Sulfur Dioxide, Nitrogen Dioxide)	-.364	.025

*Absolute value may be used to compare strength of 2 or more variables within a single regression. Sign shows direction of association with the death rate.

**The lower the number, the greater confidence one may have in the precision of the beta weight.

†A proxy variable, i.e., results for this variable imply results for its correlates (see explanation, p. 4).